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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
JOHNSON, CONNIE P	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
10/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,478	BIEBER ET AL.	
	Examiner	Art Unit	
	Connie P. Johnson	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 24-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 24-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/7/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The remarks and amendment filed 8/7/2007 have been entered and fully considered.

2. Claims 1-12 and 24-27 are presented.

3. Claim 27 is new.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-12 and 24-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teng, U.S. Patent No. 6,242,156 B1 in view of Crawford et al., U.S. Patent No. 4,430,366.

Teng teaches a lithographic printing plate comprising a substrate and a radiation-sensitive layer (abstract). The radiation-sensitive layer may be a single layer or multiple layers with different compositions (col. 5, lines 16-18). Therefore, the radiation-sensitive layers of Teng also meet the limitations of a primer layer coating layer. Teng also teaches an overcoat layer that is non-radiation sensitive (film-form layer). The non-radiation-sensitive overcoat layer (film-form) is coated on the radiation-sensitive layer to retard oxygen inhibition and prevent surface durability (col. 5, lines 40-44). Since the

overcoat layer isolates the composition from air and prevents oxygen from entering the radiation-sensitive layer, it is expected that the lack of oxygen would also reduce the UV energy required to cure the composition as in instant claim 11. Teng also teaches a polymer substrate in the printing plate composition (col. 6, line 40). The substrate may be oleophilic (ink-accepting) while, the radiation-sensitive layer comprises hydrophilic (ink-repelling) properties (col. 5, lines 8-9). The radiation-sensitive layers of Teng are also UV-absorbing as exemplified by the UV-absorbing dyes in the radiation-sensitive layers (see col. 8, lines 17-60). Specifically, leuco-crystal violet is a UV-absorbing dye (see col. 8, lines 26-27). Teng does not teach that the radiation-sensitive layer comprises a gradient solid dispersion of metal-metal oxide nor that the substrate comprises a polycarbonate film.

However, Crawford teaches applying aluminum-aluminum oxide compositions by vapor deposition (see example 1). Crawford also teaches varying ratios of aluminum and aluminum oxide throughout the thickness of the layer (col. 3, lines 53-65). The thickness of the layer comprising the aluminum/aluminum oxide is 50 to 5000 angstrom (col. 3, lines 2-3). This thickness meets the limitation of the range of 0.02 to 0.6 microns as in instant claim 6. Vapor deposition by definition comprises dispersing the metal/metal oxide particles in an uneven distribution throughout the layer to form a gradient dispersion. This process is usually performed by evaporation or sputtering. Therefore, the layer comprising the aluminum/aluminum oxide composition is expected to have a non-stoichiometric ratio between the metal and metal oxide atoms. Further, the vapor deposition process controls the amount of oxygen in the composition,

therefore it is expected that the composition would have more metal atoms than metal oxide atoms. The vapor deposition process comprises evaporation or sputtering, wherein the metal/metal oxide distribution is controlled by the amount of oxygen in the layer. The concentration of metal in the laser-absorbing layer is a result-effective variable. The metal is applied to the laser-absorbing layer based on the amount of oxygen in the composition. Therefore, the metal concentration is optimizable. "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)" (see MPEP 2144.05). It would have been obvious to one of ordinary skill in the art that the metal concentration of the laser-absorbing layer would be higher than the metal composition at both edges to improve the adhesion of the substrate to the laser-absorbing layer. Crawford also teaches that the composition comprises a polymeric substrate comprising polycarbonate (col. 5, line 3). Crawford teaches that compositions comprising metals that are vapor deposited on the layer preferably have polymeric substrates (col. 4, lines 61-67 and col. 5, lines 1-12). Among the preferred polymers is polycarbonate as in instant claim 25. It would have obvious to one of ordinary skill in the art to use the aluminum/aluminum oxide composition of Crawford in the radiation-sensitive layer of Teng because the aluminum/aluminum oxide composition provides good adhesion of the substrate to the radiation-sensitive layers as taught by Crawford (col. 1, lines 58-67 and col. 2, lines 1-3). Further, it would have been

obvious to one of ordinary skill in the art to use the polycarbonate coated substrate of Crawford in the composition of Teng to form a substrate that is compatable with aluminum/aluminum oxide coatings as taught by Crawford.

6. Claims 1 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teng (above) in view of Crawford (above) as evidenced by Nishida et al., U.S. Patent No. 5,417,164.

Teng and Crawford teach a lithographic printing plate comprising a radiation-sensitive layer (laser-absorbing layer) with an aluminum/aluminum oxide composition as relied upon above. Teng also teaches that the radiation-sensitive layer (coating layer) comprises at least one polyfunctional vinyl ether or epoxy monomer (or oligomer) (see col. 9, lines 12-15). Teng does not teach that the epoxy oligomer comprises silicon. However, it would have been obvious to one of ordinary skill in the art to use a silicon epoxy polymer in the radiation-sensitive layer (coating layer) because silicon polymers, such as a silicon epoxy polymers and silicon acrylate polymers increase ink-repelling properties of the radiation-sensitive layer as evidenced by Nishida (col. 6, lines 60-67 and col. 7, lines 1-12).

Response to Arguments

7. Applicant's arguments filed 8/7/2007 have been fully considered but they are not persuasive.

8. Applicant argues that Teng only mentions the possibility of having a laser ablatable layer consisting of metal oxide or alternatively a laser ablatable metallic layer. Further, that Teng does not teach a layer that combines metal and metal oxide.

Teng is not relied upon for the metal/metal oxide combination in the laser ablatable layer. Teng teaches that the radiation-sensitive layer may be a laser ablatable layer (see abstract). Teng also teaches advantages of having a laser ablatable layer in the printing plate composition (col. 2, lines 46-67). Therefore, it would follow that Teng would use a laser ablatable layer in the printing plate composition when excellent ablation capabilities and on-press developability are needed.

9. Applicant argues that Teng teaches away from a gradient solid dispersion and that the combination of Teng and Crawford references is improper because Crawford is not related to the art of printing plates.

Teng does not teach away from a gradient solid dispersion. Applicant has not shown evidence in the reference that Teng teaches away from this feature. Applicant is invited to show evidence in the Teng reference that teaches away from a gradient solid dispersion.

10. Applicant argues that the teachings of Crawford do not provide reason to combine it with the Teng reference for claim 1.

Crawford teaches a vapor deposition process of an aluminum/aluminum oxide composition, wherein the composition may be deposited onto different layers (see col. 1, lines 66-68 and col. 2, lines 1-3). The composition may be used for any layer that requires good adhesion to the substrate. This metal/metal oxide mixture is not in the

substrate itself, but applied to the substrate as a separate layer. Although Crawford may not specifically teach that the composition may be used in printing plates, Crawford outlines the use of an aluminum/aluminum oxide composition in any composition that requires good adhesion of the layers to a substrate. Applicant's invention meets this limitation. Crawford is properly combined with Teng because Crawford teaches the aluminum/aluminum oxide or aluminum alone and Teng teaches using the metal only. The Crawford reference offers a basic teaching of Al/AlO coating by vapor deposition that can be used in any layer, including a laser ablatable layer.

11. Applicant argues that Teng fails to teach the features of a laser absorbing layer wherein the structure of the laser absorbing layer may improve the sensitivity of the printing plate to the laser energy. Further, that the printing plate structure of the instant invention may be exposed by a lower energy and/or may be exposed for a shorter time period than a standard printing plate.

Applicant is directed to column 2, lines 48-58, wherein Teng teaches a substrate with a laser ablatable layer. During imagewise exposure of the laser ablatable layer, it is advantageous to use a coating that has the best laser ablatability (one that requires the least laser energy to achieve complete ablation). Teng specifically teaches a printing plate with this feature. Applicant discloses the same feature in the specification on page 9.

12. Applicant also argues that vapor deposition by definition, does not necessarily result in a gradient dispersion.

Examiner disagrees. Crawford teaches that the vapor deposition process comprises a controlled amount of oxygen being introduced into the metal vapor stream to enable the formation of a metal oxide (see Crawford's abstract). In addition, Crawford also teaches that the amount of metal/metal oxide can be controlled and even varied over its thickness by regulation of components in the vapor stream (Crawford, col. 1, lines 58-67). The metal/metal oxide layer described in Crawford comprises a gradient solid dispersion that varies throughout the thickness of the layer as claimed.

13. Applicant argues that Nishida does not cure the deficiencies of Teng and Crawford for claim 1.

Examiner disagrees. Nishida teaches that silicon polymers, such as silicon epoxy polymers and silicon acrylate polymers, increase ink-repelling properties of the radiation sensitive layer (Nishida, col. 7, lines 1-12). Teng also teaches the importance of establishing ink affinities in the radiation-sensitive layer and the substrate (see Teng, col. 3, lines 56-67 and col. 4, lines 1-15). Therefore, Nishida definitely cures the deficiency of Teng and Crawford.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Connie P. Johnson 10/12/07

Connie P. Johnson
Examiner
Art Unit 1752

CYNTHIA H. KELLY